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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/687,431	10/16/2003	Dale W. Schroeder	10030185-1	8035
57299	7590	08/10/2007		
Kathy Manke Avago Technologies Limited 4380 Ziegler Road Fort Collins, CO 80525			EXAMINER LIANG, REGINA	
			ART UNIT	PAPER NUMBER
			2629	
			MAIL DATE	DELIVERY MODE
			08/10/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/687,431	SCHROEDER ET AL.	
	Examiner	Art Unit	
	Regina Liang	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 June 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 21-50 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 21-50 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>7/9/07</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This Office Action is responsive to amendment filed 6/15/07. Claims 21-50 are pending in the application.

Specification

2. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: “an areal pattern” recited in claims 21 and 34.

Claim Rejections - 35 USC § 112

3. Claims 21-33 and 50 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Figs. 4-6 of the specification disclose when the sensor is over the speckle, the speckle is detected and a rise signal is generated, when the sensor is not over the speckle, the speckle is not detected and a drop signal is generated. The specification does not provide support for “each of the light sensor.... to generate a second signal when one of the plurality of speckles is disposed therebeneath and not detected thereby” as claimed in independent claim 21.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 21-50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jackson (US 4,794,384) in view of Victor et al (US 4,751,380 hereinafter Victor).

As to claim 34, Figs. 1 and 2 of Jackson discloses a device for determining a first distance along a movement path on a surface (14) over which an optical tracking device (optical mouse 20) is moved by a user, comprising:

a coherent light source (12) configured to project a first coherent light beam along the movement path and onto the surface as an incident light beam, the coherent light source (12) being configured in respect of the surface to produce a plurality of light interference speckles resulting from the first light beam and a second light representing at least portions of the first light beam reflected from the surface interfering with one another (col. 2, lines 38-44, col. 3, lines 6-12 for example), the speckles having a first average spatial dimension (col. 5, lines 15-17);

a plurality of light sensors (detector array 16) operatively associated with the coherent light source and a processor (control means, Figs. 3), each of plurality of light sensors having a second spatial dimension that is less than the first average spatial dimension of the speckles (col. 4, line 62 to col. 17 for example).

Jackson does not disclose the plurality of light sensor arranged in an areal pattern, each of the light sensor further being configured to generate a first signal when one of the plurality of speckles is detected thereby and to generate a second signal when one of the plurality of speckles is not detected thereby, and the processor configured to determine the first distance on the basis of the plurality of first and second signals generated by the plurality of light sensors as the device is moved over the surface. However, Victor is cited to teach an optical mouse similar to Jackson. Victor teaches the optical mouse having a plurality of light sensor arranged in an areal pattern (three-by-three detector array 35 in Fig. 3), each of the light sensor (detector cells A-G) further being configured to generate a first signal (one state) when one of grid lines or spaces on the surface is detected thereby and to generate a second signal when one of grid lines or spaces on the surface is not detected thereby (see Figs. 406, and col. 7, line 51 to col. 8, line 41 for example), and the processor (Fig. 5) configured to determine the first distance (cursor movement) on the basis of the plurality of first and second signals generated by the plurality of light sensors as the device is moved over the surface. Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the optical device of Jackson to have the light sensors arranged in an areal pattern and processor as taught by Victor so as to provide a compact optical mouse due to the use of a three-by-three detector array, and the system reliably determines relative motion between the mouse and the surface (col. 8, line 55-67 of Victor).

As to claims 35, 36, Victor teaches the processor is configured to determine the direction, first distance and a first direction based on the plurality of first and second signals generated by the plurality of the light sensor as the device is moved over the surface (Figs. 4-6 of Victor).

As to claims 37, 38, Jackson teaches the processor is configured to determine at least one characteristic of the speckles (col. 4, line 63 to col. 5, line 38).

As to claim 39, Fig. 2 of Jackson teaches the coherent light source and the sensors are configured such that the first average spatial dimension of the speckles is predicted with a high degree of confidence.

As to claim 40, Jack teaches the average speckle dimension is given approximately by the equation (col. 5, lines 1-17).

As to claim 41, Jackson teaches counting the number of speckles along the optical path to determine the first distance (Fig. 4, col. 8, line 58 to col. 9, line 21).

As to claim 42, Jackson as modified by Victor does not disclose the first average speckle dimension of the speckles is selected from the group consisting of about 10 microns and ranging between about 50 and about 100 microns, or is approximately. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Jackson as modified by Victor to have the first average speckle dimension as claimed, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272,205 USPQ 215 (CCPA 1980).

As to claim 43, Victor teaches the plurality of light sensors comprises at least five light sensors.

As to claims 44, 45, Figs. 6 of Victor teaches the first signal is a high signal (one state) and the second signal is a low signal (zero state), or the first signal is a low signal (one state) and the second signal is a high signal (zero state),

As to claims 46, 47, Fig. 6 of Victor teaches to detect the leading edges and the trailing edges of the first and second signals.

As to claim 48, Jackson as modified by Victor does not disclose the first average spatial dimension of the speckles is at least twice that of the second spatial dimensional of the sensors. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Jackson as modified by Victor to have the first average speckle dimension as claimed, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272,205 USPQ 215 (CCPA 1980).

As to claim 49, Jackson teaches the device is a mouse.

Claims 21-33, 50, which are method claims corresponding to the above apparatus claims 34-49, are rejected for the same reasons as stated above since such method "steps" are clearly read on by the corresponding "means".

Response to Arguments

6. Applicant's arguments with respect to claims 21-50 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

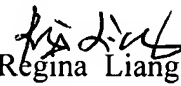
Art Unit: 2629

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Regina Liang whose telephone number is (571) 272-7693. The examiner can normally be reached on Monday-Friday from 8AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Hjerpe, can be reached on (571) 272-7691. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Regina Liang
Primary Examiner
Art Unit 2674

8/6/07